A. F. W. SCHIMPER.

BRIEF mention has already been made of the death of this brilliant botanist, but it is fitting to record here some of the most interesting features of his life. In view of his high rank as a botanist and his many contributions to all phases of botanical activity, it seems incredible that he was but 45 at the time of his death. His father before him, W. Ph. Schimper, had made for himself an illustrious name in botanical work, no other of his time excelling him in his two favorite fields, bryology and paleobotany. The subject of our sketch won his doctorate in 1878 at Strassburg, where his father was professor of botany.

Schimper's first famous investigation was on starch and plastids, and he was the first to show that plastids are necessary for starch formation. Another important contribution to knowledge was made when he showed that plastids do not arise spontaneously in the cytoplasm, but that they always proceed from pre-existing plastids. Some years later Schimper published papers on the formation of calcium oxalate in leaves and on the assimilation of mineral salts by green plants, calling attention to the manifold metabolic activities of the leaf, and showing that chlorophyll has a part in the production of proteids.

Botanists have often had occasion to remark Schimper's breadth of mind. Versed in all botanical fields and an investigator in many, he could scarcely be narrow. But it cannot be doubted that his extensive travels, especially in the tropical regions of both hemispheres, contributed largely to his breadth of view. American authors have often complained that continental botanists do not give sufficient credit to papers printed this side of the water, but no such complaint could rightly be made against Schimper. Perhaps his fellowship at Johns Hopkins in 1881, and his travels in Florida, the West Indies, and South America made him feel kindly toward Americans. Some years later he spent considerable time at Buitenzorg, and his investigations are among the most brilliant that have come from that famous botanical center. Only a short time before his death he accompanied the Valdivia expedition to the Antarctic regions.

In 1883 Schimper was called to the University at Bonn, where he rose from a docentship to a professorship, and it was from here that most of his investigations were published. In 1899 he accepted a call to the University at Basel, where he remained until his death, September 9, 1901. Schimper will doubtless be remembered longest through

his ecological contributions. It was he who organized and issued the *Botanische Mittheilungen aus den Tropen*, which have probably done more to give a correct picture of the ecology of the tropical vegetation than all other works combined. Schimper himself contributed the most important papers to this series, among which may be mentioned: Die epiphytische Vegetation Amerikas, in which most of our knowledge about epiphytes as they occur in tropical nature is to be found; Die Wechselbeziehungen zwischen Pflanzen und Ameisen im tropischen Amerika; Die indomalayische Strandflora. One of Schimper's most important papers was on transpiration; in this place he for the first time clearly showed that plants of cold regions and plants of saline habitats are obliged to meet the same dangers as desert plants, viz., excessive transpiration.

The crowning work of this indefatigable botanist was his *Pflanzengeographie*, which was reviewed in this journal.[5] The review written at that time was the result of a first impression. Now that almost daily use has been made of this great work in the three years since it appeared, that favorable impression has been not only fully justified but intensified. It is clear that this work marked, as then predicted, the beginning of a new epoch, an epoch that is expressed in the title: *Pflanzengeographie auf physiologischer Grundlage*. It is the physiological basis that distinguishes the new ecology from that of other days, and into this new field of endeavor Schimper led the way. It is sad indeed that those who are trying to follow out the tortuous ecological paths have lost a leader of such ability and breadth.—H. C. COWLES.

[5] BOT. GAZ. **27**: 214–216. 1899.